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ABSTRACT

In order to develop a set of financial indicators useful for identifying long range trends in costs and revenues, this report reviews factors affecting financial health at Prince George's Community College (PGCC) from 1970 through 1976. In a three-part analysis, the author discusses (1) the measurement of financial well-being, (2) the indicators applicable to the college, and (3) the financial developments of the 1970's affecting PGCC. Part one considers the decline of credit hour costs in real dollars that occurred at PGCC between 1970 and 1976 and the influences on these costs, and reviews a national study in which PGCC was included that identified 16 discriminators of financially healthy institutions. Part two reviews the effects of student/faculty ratios, full-time faculty compensation, the ratio of fixed costs to total revenue, the relationship of plant assets to full-time equivalent students, and freshman/graduate and student/faculty ratios as indicators of financial well-being. Revenue and cost patterns are examined in part three, along with future financial projections. The text is supplemented by statistical data relevant to each section, and data from the national survey are appended, including financial health indicators, PGCC scores, and the interpreted values used for the analysis in this report. (RT)

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PRINCE GEORGE'S COMMUNITY COLLEGE

Report No. 77-28: 1970's Trends in Cost and Revenue Factors as Financial Health Indicators

The present report reviews factors affecting financial health at Prince George's Community College during the Seventies, according to the following outline:

Part A: Means of measuring financial well-being

1. Declining credit hour costs
2. Measurable influences
3. A research study

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Part B: Applying the indicators to PGCC

1. Student-faculty ratio
2. Full time faculty compensation
3. Fixed costs-total revenue
4. Plant assets-FTE students
5. Freshmen-graduates ratio

Part C: 1970's developments immediately affecting financial status

1. Revenue patterns
2. Cost patterns
3. The outlook for the future

Scope and Limitations

The purpose of this study was to develop a set of indicators useful for identifying long range trends in costs and revenues. Certain trends in budget were pertinent, but beyond the scope of the study. Attempts to interpret the indicators should be understood as an initial effort to relate changes in the data elements to the meaning of the indicator. This paper is not therefore a definitive study. It is more intended to stimulate thinking and discussion. At some later date (after a time for discussion and further experience) certain indicators may be selected for regular use for decision making or program evaluation. Such a use is desirable if it benefits the College, but beyond the immediate scope of the present report.

Paul Larkin, Director
Institutional Research

JC 770 391

Part A: Quantitative Measures of Financial Well-Being

A-1. Declining Credit Hour Costs

When expenditures per credit hour were translated into costs per constant dollar, it was found that the College's credit hour costs decreased notably during the Seventies.

A-2. Measurable Influences on Credit Hour Costs

Selected determinants of credit hour costs as expressed by quantitative indicators have been identified from past research (faculty-student ratio, faculty compensation, cost-revenue relationships, and student flow variables).

A-3. A Research Study

One national study which included PGCC aimed at developing indicators of financial health. After exploration of 224 variables, sixteen factors were identified for discriminating financially health and unhealthy institutions.

Declining Credit Hour Costs, 1971 through 1976

In spite of inflationary pressures, the College's expenditures per credit hour have remained stable during the Seventies. This section examines credit hour cost trends between Fiscal 1971 and Fiscal 1976. Comparisons are made with the Higher Education Price Index (HEPI) and the Consumer Price Index (CPI).

The Higher Education Price Index has been developed by federal government sources to describe the costs of goods and services in higher education. The Consumer Price Index is also published by the federal government as a general indicator of price comparisons from one year to the next. According to the HEPI, for example, inflation took $6.60 of every hundred dollars needed to operate colleges last year. This inflation rate was typical of recent six-year trends. Expenditures can therefore be compared with cost trends with and without inflation, with a view toward examining what is happening to the "real" costs of credit hours.

Price Index Comparisons

Between 1971 and 1976, the annual increase in College expenditures tended to range between 9 and 16 percent. (The one exception was Fiscal 1974, when there was only a one percent increase.) During this same six-year period, the Higher Education Price Index rose at a 6.6 percent average annual rate. The Consumer Price Index rose at about the same rate, as shown in Table 1. College expenditures were thus increasing at a faster rate than the price indexes. What was happening to the cost per credit hour?

Costs per Dollar

Between 1971 and 1976, dollars spent per credit hour remained stable. As credit hours increased at the College, costs remained near $50 per hour. But inflationary forces made the dollar have less purchasing power. Expenditures per constant dollar have therefore been calculated for this period, with the CPI as a basis for comparison. Constant dollar costs per credit hour have been estimated in 1971 dollars. The findings show that the real costs of credit hour production, removing the influence of inflation, have been declining. A credit hour that cost $49 in FY72 cost only $36 in FY76. How is this decrease in constant dollar costs to be explained? What were the sources of institutional cost-effectiveness during the 1971-1976 period? The section which follows will consider a number of factors which may help explain trends in credit hour costs.

Table 1

PRINCE GEORGE'S COMMUNITY COLLEGE

Declining costs of credit hours per constant dollar expended, FY71-FY76

Fiscal Year	Annual Expenditures	Credit Hours	Cost per Credit Hour	Constant Dollar Expenditures	Cr. Hr. Cost per Constant Dollar
1976	$12,057,000	238,380	$50.58	$8,636,819	$36.23
1975	11,083,400	210,535	52.64	8,499,531	40,37
1974	8,841,600	193,592	45.67	7,537,621	38.94
1973	8,762,000	169,211	51.78	8,135,168	48.08
1972	7,831,000	153,318	51.08	7,558,890	49.30
1971	6,743,700	137,661	48.99	6,743,695	48.99

SOURCE: Office of Institutional Research, based on College records and the Consumer Price Index.

4/01/77

Table 2

PRINCE GEORGE'S COMMUNITY COLLEGE

Annual Expenditures Compared with Higher Education Price Index and Consumer Price Index, FY71-FY76

Fiscal Year	Annual Expenditures	% Change	H. E. Price Index	% Change	C.P.I.	% Change
1976	$12,057,000	8.8%	138	6.6%	140	7.1%
1975	11,083,400	12.5%	128	8.6%	130	11.2%
1974	8,841,600	0.9%	117	7.1%	117	8.9%
1973	8,762,000	11.9%	110	55.3%	108	3.9%
1972	7,831,000	16.1%	105	5.6%	104	3.6%
1971	6,743,700	N.A.	100	6.4%	100	5.2%

SOURCE: Office of Institutional Research based on Certified Financial Statements and U.S. Government reports (DHEW Publication No. (OE) 77-17005).

4/01/77

Factors Affecting Credit Hour Costs

Prices the College had to pay for goods and services were rising during the Seventies. For credit hour costs to remain constant (or to decline), there had to be growing efficiencies in resource allocation, increasing credit hour production per resource unit invested, revenues increasing faster than fixed costs, or some combination of these influences.

Factors affecting credit hour costs were explored in reviews of the literature, and discussions among local institutional research offices doing cost sutdies. A listing of relevant variables was developed (see list). Relationships between the variables were examined to determine relevant cost factors. Promising factors for further analysis included the following:

1. the FTE student-FT faculty ratio,
2. faculty compensation,
3. fixed costs-total revenue ratio,
4. FTE students-plant assets ratio, and
5. freshmen-degrees conferred ratio.

The rationale for relating these factors to credit hours and their costs would be as follows:

1. The greater the number of students in relation to the same full time faculty, the lower the credit hour costs would be;
2. If faculty compensation (including fringe benefits) is paralleled by credit hour growth, unit costs will be non-inflationary;
3. Fixed operating costs (mainly salaries) have remained within the constraints of total revenues.
4. Plant utilization has remained intense relative to total credit hours generated, thus making possible many efficiencies.
5. Expenditures for academic mission (instructional costs) have remained high relative to total expenditures.
6. The ratio of freshmen to total degrees conferred has remained relatively high, thus helping to defray the expenses of costly "200 level" courses and other expensive sections offered.

These factors, along with others which can be identified as promising for purposes of analysis, will be proposed as possible subject matter of further research. There remains to be examined, however, still one more study which explicitly included Prince George's Community College.

Table 3

Listing of Variables Potentially Useful for Cost Analysis

- Degree Level
- Type of Control (Public/Private)
- Semester FTE Students or Credit Hours
- Semester FT Faculty
- Student Headcount
- Median Faculty Salary
- Total Faculty Salaries
- Reference Population (County, Region)
- No. of Degree Programs
- Moderate Standard of Living (BLS) for locality
- Age of the Institution
- Percent Minority Students
- Dollar Cost Variables

- Educational & General Expenditures
- Plant Additions
- Current funds revenues
- Current funds expenditures
- E & G revenues
- Fixed Operating Costs
- Gifts, grants, & contracts
- Academic mission expenditures
- Tuition & Fees
- Student Aid revenues
- Plant Assets
- Total Degrees conferred
- Freshmen

SOURCE: Various cost and productivity studies.

4/15/77

A Research Study Which Included PGCC

Change magazine recently published the work of three researchers measuring the national fiscal state of higher education in 1974.* Prince George's was among the institutions sampled, and was reported to be experiencing financial health in 1974. To evaluate the meaning of this analysis, a closer look was taken at the methodology.

The researchers reviewed the literature to develop 224 variables describing fiscal status. The variables included 46 financial ratios in three-year time series, trends in expenditures, revenues, and enrollments, and descriptor variables concerning program, control, and level of degree offerings. An eight-expert panel then rated a random sample of 50 institutions on a 5 point scale from "very unhealthy" to "very healthy," based on the 224 variable values for each school. The averaged ratings located schools at extreme ends of a spectrum (compared with chance or random distribution). Discriminant analysis was used to determine the underlying differences. The analysis selected, weighted, and combined variables most powerfully distinguishing the "unhealthy" group from the "healthy" group. This procedure yielded sixteen discriminating variables for any given school in any given year.

The sixteen factors represent five major classes of information: expenditures, revenues, asset use, enrollments, and institutional type. The sixteen indicators included 10 ratios, 4 trends, and 2 descriptors. (Chart 1 lists and describes each variable and the fiscal condition it represents.) The descriptor variables distinguish private from public institutions, and two year schools from senior schools. The trends trace FTE enrollments, educational and general expenditures, and changes in physical plant expenditures. The ratios suggest financial pressure points, such as the adequacy of revenues to cover expenditures, physical plant productivity or intensity of use, the estimated cost of a degree, and the persistence of students in attending.

The variables receiving the nighest weights ranked as follows: 1. the ratio of graduate students to undergraduate students, 2. the ratio of educational and general revenues to fixed costs, 3. the ratio of total revenues to total costs, 4. the ratio of plant assets to FTE enrollment, and 5. the descriptor of private versus public control. (See Table 1 for weights associated with each variable.) One cannot infer

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* Andrew H. Lupton, John Augenblick, and Joseph Heyison, "The Financial State of Higher Education," *Change*, September, 1976.

from this model that the expert panel relied heavily on any of the 16 variables. Whatever their value judgments, the program organized the institutional data into a linear combination that included over 97 percent of the criterion information. The program was therefore able to "mimic" the ratings of the panel, by applying rules of arithmetic. (See Appendix A for data and documentation.)

While this system may discriminate healthy and unhealthy institutions, the model locates three quarters of the public two-year colleges in the healthiest categories. It is thus uncertain how effectively the method discriminates healthy and unhealthy community colleges. But the research succeeeds in identifying factors for understanding financial health at PGCC. The strongest indicators are revenue and expenditure trends. It is important to be aware of changes in expenditures (either fixed or variable) due to physical plant growth, inflationary pressures, trends in revenue, such as income from state and local funding, student tuition, and public service contracts. The past, present, and expected balance of these indicators can be an important early warning system of potential financial stress.

Transition Statement

Declining credit hour costs per constant dollar have been identified as a phenomenon of the early Seventies. Factors have been identified which merit further analysis, as a basis for knowing "what we are doing right." Quantitative indicators do not tell the whole story of management in education, but are potentially supportive of the longer range planning and budgeting process. The sections which follow will attempt to apply the indicators in such a way as to generate ideas for longer range planning.

Part B: Applying Measures of Financial Health to PGCC

B-1. Student-Faculty Ratio

The fact that the number of full time faculty did not increase between FY73 and FY77, while credit hours did increase, is the basis for a favorable FTE student-Full time faculty ratio. Credit hour production has a potential for further increases in the future, while full time faculty remains steady.

B-2. Full Time Faculty Compensation

The basic package of full time faculty salaries and fringe benefits kept pace with inflation during the mid-Seventies. If the direction of trend were to continue, a contribution would be made to institutional financial health.

B-3. Fixed Costs-Total Revenue Ratio

The relationship of relatively stable cost items to total revenue is more favorable when there is extra income from special programs or projects. The availability of such extra income is likely in the years ahead.

B-4. Plant Assets-FTE Students Ratio

The ratio of plant assets to the number of Full Time Equivalent students helps to measure maintenance costs in relation to service and revenue. Planned building projects are expected to increase the expense item more than the revenue item, thus introducing the stress of additional pressure on financial well-being.

B-5. Freshmen-Graduates Ratio

A high ratio of freshmen to graduates indicates that larger and cheaper lower level classes can help finance the smaller class sections and higher paid faculty associated with more advanced courses. A time of expansion in freshmen can thus be a financially healthier time. The outlook for the future as measured by this indicator will depend on the success of marketing efforts currently in process.

Student-Faculty Ratio

The ratio of FTE students to full time faculty is a chief indicator of financial health and stability. Full time faculty involve a critical cost factor. If these costs are not accompanied by increased productivity and revenue, there will be problems. Credit hours (as expressed by FTE's) measure productivity (outputs) and income. An increasing ratio of FTE's to full time faculty indicates financial well-being, since it shows that revenue is keeping ahead of expenses.

The College's full time faculty has not increased since the early 1970's. Between FY71 and FY77, credit hours or FTE's were showing strong annual gains. The ratio of FTE students to full time faculty was 24.5 in FY71. By FY77 the ratio was 34.3. Due to large annual gains in credit hours up to FY77, growth rates in the ratio were moderate to high (between 4 and 19 percent). FY73 was an exception, when an 18 percent increase in full time faculty was associated with a 7 percent decrease in the student-faculty ratio.

Looking toward the future, an objective of stability or improvement in the ratio would require a balance of credit hours with full time faculty levels, an increase in credit hours, or a decrease in full time faculty. Current marketing efforts suggest credit hour growth as a means to insure financial health. But the line is also being held on full time faculty hires. These steps together would improve the ratio in the longer run by increasing the revenue factor while holding the chief high-cost factor within limits.

Table 4

PRINCE GEORGE'S COMMUNITY COLLEGE

Trends in F.T. Equivalent Students/FT Faculty Ratio

Year	FTE Students	% Change	FT Faculty	% Change	FTE-S/FT Fac Ratio	% Change
1977	8,133	2%	237	2%	34.3	1%
1976	7,946	13%	233	1%	34.1	12%
1975	7,018	9%	231	1%	30.4	7%
1974	6,453	15%	228	-4%	28.3	19%
1973	5,640	10%	238	18%	23.7	-7%
1972	5,111	12%	201	7%	25.4	4%
1971	4,589	13%	187	9%	24.5	N.A.

SOURCE: Institutional Research files.

5/09/77

Faculty Compensation

Full time faculty compensation is a key expenditure measure. The basic package of full time faculty salaries and fringe benefits has kept pace with cost trends. The rate of growth in compensation has tended to be moderate during the mid-Seventies, compared with national salary standards. The number of full time faculty members did not increase between FY73 and FY77. The compensation package increased by a million dollars. This represented an average annual growth rate of 6.6 percent for full time faculty compensation, a rate higher than the national salary growth rate for the same period (5.2 percent), no higher than the growth rate for the Consumer Price Index. Compensation was keeping pace with inflation, and remaining within reasonable bounds of fiscal control.

What would be the outlook for the future if present trends continued? College policy is expected to favor part time faculty utilization over full time faculty expansion. This implies administrative flexibility for goal achievement, while commitments to the livelihood and well-being of the full time faculty are more readily met. Where student interest and educational standards require increases in full time faculty in selected divisions and departments, normal attrition in other divisions and departments could "free up slots" to achieve these standards.

Continuing financial helath would be threatened by pressures to increase full time faculty while resisting attrition in cost centers with declining productivity. Priorities in full time faculty recruitment should be based upon educational criteria. This suggests a need for improved information, perhaps in relation to affirmative action as well as budget impact. Such information could provide the basis for re-thinking priorities for full time faculty development in the 1980's. This would include goals for hiring minorities and women in those academic disciplines where the well-being of the total College is best served, based on student interest and educational outcome criteria.

Table 5

PRINCE GEORGE'S COMMUNITY COLLEGE

Full Time Faculty Compensation

Academic Year	Faculty Compensation	% Change	Reference % Change in Faculty Salaries Nationally
1976-77	$4,595,498	10.8%	4.9%
1975-76	4,148,414	5.8%	6.0%
1974-75	3,921,894	14.4%	5.8%
1973-74	3,429,827	-4.8%	5.1%
1972-73	3,602,636	25.9%	4.1%
1971-72	2,862,298	14.6%	3.6%
1970-71	2,499,406	83.9%	5.4%
1969-70	1,359,655	N.A.	5.8%

SOURCE: HEGIS reports for faculty compensation; Chronicle of Higher Education for national salary data (may 2, 1977).

5/20/77

Ratio of Fixed Costs to Total Revenue

Fixed costs in this context are defined as those expenditures (such as salaries and plant operations) which are relatively stable from year to year, and involve no terminal contracts. Examples of terminal contracts would be research grants and public service projects. The idea here is that there is a basic commitment of staff and plant resources to instruction as the primary mission of the institution. Special programs and projects provide additional flexibility for assigning resources to achieve compatible objectives. This permits effeciencies in the utilization of space and personnel. Overhead revenue gained helps to defray the cost of institution-wide expenses like accounting and maintenance. A lower ratio of fixed costs to total revenue therefore suggests more potential for financial health. This is because revenues will be large relative to the "commitment" costs of primary mission.

The College's fixed costs by this definition exclude County manpower projects (CETA) supported by federal funding. Such projects are classified under "public service." (The College does not have systematic research grants as part of its usual activities.)

The College's fixed costs tended to rise sharply in the early Seventies (between 15 percent and 41 percent) except for fiscal 1974 and fiscal 1976, when the increase was closer to 5 percent. Total revenues (including the so-called "soft" money for CETA) rose more sharply, between 17 and 39 percent per year, except for fiscal 1974 when the increase was 2 percent. The ratio of fixed costs to total revenues thus tended to be relatively stable (between -6 and +2 percent). The sharpest reduction in the ratio happened in FY76 (-12 percent).

The outlook for the future is at this time uncertain. But federal policies favoring employment training appear to insure the availability of CETA money for some years to come. Should projects such as these continue, they would probably contribute to the financial soundness of the College's instructional operations.

Table 6

PRINCE GEORGE'S COMMUNITY COLLEGE

Trends in Fixed Costs/Total Revenue

Fiscal Year	Fixed Costs	% Change	Total Revenue	% Change	Fixed Costs/ Revenue	% Change
1976	11,900,534	6%	14,189,753	20%	.84	-12%
1975	11,256,607	26%	11,864,284	26%	.95	1%
1974	8,917,053	4%	9,449,021	2%	.94	2%
1973	8,546,623	17%	9,281,099	17%	.92	0%
1972	7,325,257	15%	7,923,174	22%	.92	-6%
1971	6,354,126	41%	6,481,546	39%	.98	1%
1970	4,516,601	N.A.	4,662,667	N.A.	.97	N.A.

SOURCE: Institutional Research Office.

5/13/77

Plant to Students Ratio

The ratio of plant assets to FTE students can be used as a measure of the intensity of usage for physical plant. In addition, this indicator suggests the cost of maintenance or operation of plant in relation to revenue or output associated with student use of facilities. If the ratio is low and getting smaller, this suggests more intense use and thus greater economies per person served. Such was the case in the early Seventies, when the College was growing from 3,570 FTE in 1970 to 5,111 FTE in 1972. Because the student usage was growing faster than the plant assets, the ratio was increasingly favorable. Increases in the assets associated with building, however, contributed to a considerable change in the ratio in the mid-Seventies. Plant assets went up sharply in fiscal 1975 and again in fiscal 1976 as major buildings were constructed and ready for use. This development notably increased the ratio of plant assets to FTE students in FY75, but the ratio has remained relatively stable since that time.

With respect to the future, several more building projects are planned for the completion of the Largo Campus. This construction would impact on the plant to students ratio by raising it further, insofar as there are constraints to FTE's (limits of size) at Largo due to the capacity and purposes of the existing buildings, especially the classroom buildings. An expanded Learning Resources Center, a Science Wing, and enlarged Physical Education facilities would not result in corresponding FTE growth, because these are not buildings that multiply credit hours on which FTE's are based. The final result would therefore be an increase and then final stabilization in the plant cost factor, probably accompanied by a stabilization in the revenue and productivity factor, as resources outside the Largo Campus would then be developed.

Table 7

PRINCE GEORGE'S COMMUNITY COLLEGE

Trends in the Ratio of Plant Assets to FTE Students

Fiscal Year	Total Plant Assets	% Change	FTE Students	% Change	Ratio	% Change
1976	23,052,191	16%	7,946	13%	2,901.11	3%
1975	19,787,410	62%	7,018	9%	2,819.52	49%
1974	12,216,025	22%	6,453	14%	1,893.08	6%
1973	10,035,925	29%	5,640	10%	1,779.42	17%
1972	7,790,632	12%	5,111	11%	1,524.29	1%
1971	6,958,457	5%	4,589	12%	1,516.33	-19%
1970	6,653,830	5%	3,572	12%	1,862.77	-25%

SOURCE: Institutional Research records.

5/12/77

Table 8

PRINCE GEORGE'S COMMUNITY COLLEGE

Components of Plant Assets

Year	Land	Buildings	Equipment	Total
1976	2,492,439	17,912,571	2,647,181	23,052,191
1975	2,492,439	15,119,290	2,175,681	19,787,410
1974	2,492,439	7,728,693	1,994,893	12,216,025
1973	2,492,439	5,737,277	1,806,209	10,035,925
1972	614,775	5,680,708	1,495,149	7,790,632
1971	614,775	5,288,654	1,055,028	6,958,457
1970	614,775	5,278,850	760,205	6,653,830

SOURCE: HEGIS Reports.

5/13/77

Freshmen-Graduates Ratio

Another indicator of financial well-being is the freshmen-graduates ratio. This ratio can be related to the concept that the students closer to graduation require more specialized classes with fewer students (and perhaps the attention of higher-ranked professors who receive greater compensation). If there are a great many freshmen and the number is increasing, the relationship of income to cost is presumably favorable. (By the same token, getting more students to progress into the expensive "201" courses without increasing the number of 201 sections would also involve increased cost-benefit, assuming the same quality of instruction.)

The College had strong percentage gains in freshmen in the early Seventies. The growth rate of degrees awarded was also high during this period, higher than the freshmen growth rate. As a result, the ratio of freshmen to graduates declined until the mid-Seventies. A surge in freshmen enrollments in fall 1975 increased the ratio during that particular academic year. But the next year produced a plateau in the ratio. It remains to be seen what the line of trend will be for the late Seventies. The success of a marketing effort now in progress may be measured in part by changes in this ratio. Objectives designed to suggest marketing targets might be adopted which would include higher freshmen levels as an outcome of recruitment procedures, thus permitting a means of evaluating the results of the effort.

Table 9

PRINCE GEORGE'S COMMUNITY COLLEGE

Trends in Freshmen-to-Graduates Ratio

Academic Year	No. of Fall Freshmen	% Change	Degrees Conferred	% Change	Freshmen-Degree Ratio	% Change
1976-77	9,273	3%	950	4%	9.8	-1%
1975-76	8,992	19%	913	3%	9.9	15%
1974-75	7,567	5%	884	10%	8.6	-3%
1973-74	7,181	18%	807	24%	8.9	-5%
1972-73	6,098	10%	651	23%	9.4	-10%
1971-72	5,561	15%	528	18%	10.5	-3%
1970-71	4,834	n.a.	448	48%	10.8	n.a.

SOURCE: Institutional Research files.

5/10/77

Part C: Developments of the Seventies affecting Income and Expenditures (Exogenous Variables)

C-1. Revenue Patterns

The student, the state, and the County are the chief sources of College revenue. During the Seventies to date, it has been the increase in student enrollments and credit hours which has been the main driver of expanding revenue. The College population of degree-credit students grew from 6,223 in 1970 to 11,915 in 1976. During this same period, student credit hours were funded at a level of 107,146 credit hours in FY71 and 255,800 credit hours in FY77. This translates into 3,572 FTE's at the beginning of the decade and 8,527 FTE's most recently.

While student tuitions have not been increased during this time of rising prices and decreasing purchasing power of the dollar, the expansion of students has been a source of millions upon millions of dollars in state and County subsidy for the Full Time Equivalent student. Thus the growing number of students has been a direct and immediate source of funds which could be allocated with some degree of administrative flexibility as resources to achieve priority objectives. So long as the credit hours were growing sharply, there was "new money" to do something more with than the year before, including coverage of rising prices, awarding salary increases and fringe benefits to full time employees, and taking care of highly desirable purposes such as more student services or improved data processing capabilities. The increasing revenues associated with credit hours permitted a great many administrative alternatives which would then be reduced when the period of expansion was over.

One of the important sources of new students and increased credit hours was the off-campus expansion of extension centers during the early Seventies. At the same time the Community Services program was growing sharply, and the public service program and manpower under federal revenue sharing funding were contributing to increased total revenues, as a base for support service efficiencies (accounting, for example) and flexibility of alternatives for administrative resource allocation. Initiatives to increase federally related programs and services were thus a source of increasing funds. Dampening of the availability of County funds from federal channels, however, has gradually become a constraint on initiatives along this line, contributing to more of a plateau in the availability of financial resources. This development would imply reduced decision flexibility as the costs of goods and services continued to go up.

C-1. (continued)

The County government has had an important influence on revenue levels through the budget review and expenditure ceiling authority. At one time in the early Seventies the County payment was by law awarded as a result of a formula, depending on the number of FTE's generated. This situation was changed when the state legislature changed the budgeting and funding procedure at mid-decade to provide for County authority to establish expenditure ceilings in connection with the annual budgeting process. The County thus effectively controls expenditure levels regardless of revenue, a situation different from that of the early Seventies.

Most recently the state legislature has increased its funding to $800 per FTE student, after seven years of funding at $700 per FTE. This development represents a 14 percent increase in state subsidy, which could have the effect of a 7 percent increase in income even if FTE's did not increase in the fiscal year ahead. It is clear that such an increase in total revenues would just keep up with an inflation rate of 6.6 percent, and would not take care of increasing pressures for expenditures in the year after next. This brings us to a specific consideration of cost factors impacting on the College from the outside, so to speak, as each year goes along.

C-2. Cost Patterns

Rising prices affecting the College during the Seventies have notably included the increasing costs of supplies and equipment, energy, and outside services in addition to the need to "keep up" with the expenses employees have to pay simply to maintain their standard of living. Salary costs account for most of the College's increasing outlays charged to instruction, student services, and general administration during the Seventies, but even under these headings the cost of equipment and supplies as well as outside services has been escalating steadily. (See Appendix for expenditures by function.) Under plant operation and maintenance there is the additional element of increasing fuel costs. While every effort has been exercised to increase efficiencies and reduce frivolous or wasteful expenditures, such as unnecessary phonecalls, the direction of cost trends suggests that there will continue to be pressures to economize in the years immediately ahead.

C-3. The Outlook for the Future

Current cash flow constraints are a challenge to any marketing effort that would seek to increase both service and revenue. Initiative for expanded service will not be immediately rewarded by more resources for generating credit hours. There must be a lag between increased service and the raising of authorized expenditure levels, the way the present annual cycle is set up .

In effect this may mean that each year we must currently do the best with what we have, in the sense of efficient use of resources to generate credit hours, rather than hope for a "fuller funding" that would permit us to do more on the basis of larger program objectives. Such is the present fiscal reality, consequent upon County-imposed "expenditure ceilings."

Appendix A

Table 1:	Comparing Institutional Financial Health Percentage Distributions
Chart 1:	Financial Condition by Five Health Scores
Table 2:	Values of Indicators used in this Analysis (PGCC data)
Table 3:	Financial Health Ratios, FY1974
Table 4:	Data for Prince George's Community College Institutional Financial Health Score

Appendix A

Table 1

Comparing Institutional Financial Health Percentage Distributions

Financial Health Score Range	A +1.0 and above	B +.25 to+.99	C +.24 to-.24	D -.25 to-.99	E -1.0 and below
All institutions	25.1%	18.8%	6.9%	34.8%	14.4%
Institutions by enrollment					
Fewer than 1,000 students	12.5%	11.2%	11.7%	42.5%	22.1%
1,001 to 2,499 students	26.0%	13.3%	6.4%	40.9%	13.4%
2,500 to 4,999 students	37.0%	27.3%	2.0%	26.6%	7.1%
5,000 to 9,999 students	35.1%	32.7%	3.7%	22.0%	6.5%
10,000 students and above	41.8%	37.8%	0.5%	12.2%	7.7%
Institutions by highest degree offered					
Associate degree	55.9%	13.6%	8.3%	17.3%	4.9%
Baccaluareate degree	0.9%	10.8%	8.4%	54.9%	25.0%
Masters/first professional degree	9.3%	31.2%	4.4%	39.8%	15.3%
Doctorate degree	12.3%	34.8%	2.7%	33.0%	17.2%
Institutions by control					
Public	48.1%	34.4%	4.0%	11.1%	2.4%
Independent	1.0%	2.4%	10.0%	59.5%	27.1%
Institutions by religious affiliation					
Institutions without affiliation	33.0%	23.8%	4.9%	26.5%	11.8%
Roman Catholic affiliation	0.5%	1.1%	7.1%	61.1%	30.2%
Protestant affiliation	0.3%	3.9%	16.1%	61.8%	17.9%
Institutions by coed status					
Coed	27.2%	20.1%	7.0%	33.9%	11.8%
Single sex	0.8%	4.1%	4.1%	48.9%	42.1%
Predominantly black institutions	3.9%	29.9%	13.0%	40.2%	13.0%

Educational Change

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Dear Academic Administrator:

In the September issue of *Change*, three researchers published a major new analysis on the fiscal state of higher education. (Single reprints are available for $2 each.) As part of this article, the editors of *Change* agreed to provide to those institutions reporting HEGIS data that were used in this study a computer printout, which allows you to compare certain budgetary functions of your institution with those of institutions comparable in type and size.

The analysis published in *Change* employed HEGIS (Higher Education General Information Survey) data for the years 1972-74 and the subjective judgments of a panel of experts in ranking a sample of 55 institutions. These rankings were analyzed and a number of statistical tests and procedures were employed that enabled the researchers to use a computer-based technique to "mimic" the judgments made by the panel. The results of this analysis were then applied to all institutions for which sufficient data were available. (See the Technical Notes in the September issue of *Change* for a description of the analytical procedures.)

Your institution's score has been calculated by taking its data and putting it into a form that makes it comparable with that of other institutions. The raw data are derived as follows: Control, public = 0, private = 1; Type, two-year = 1, other = 0; all trends, take the natural logarithm (ln) of the data for 1974 and subtract it from a similar transformation of the 1972 data; all ratios, locate raw data and divide as indicated. (More explicit instructions concerning these procedures are available in a *Change* publication entitled *President's Worksheets for Institutional Self-Analysis* ($10 from *Change*).

The raw data have been transformed into Z-score form using the standard procedure:

$$\text{Z-score} = \frac{\text{raw data - U.S. mean}}{\text{U.S. standard deviation}}$$

Using the above formula, you can take the information provided on the computer printout and determine your institution's raw data. The Z-score for each variable is then multiplied by the appropriate weight and the product is shown in the TOTAL column. The sum of the numbers in this column yields your institution's financial health score. The total indicated may not agree with your total due to rounding error. These scores were grouped for discussion in *Change* and in the Comparison Table as follows:

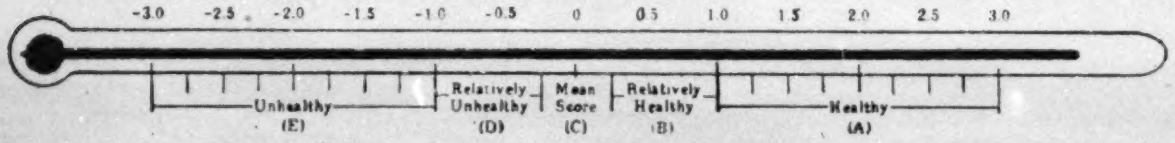
Health Score	Category
+1.00 and above	A
+.25 to .99	B
−.24 to +.24	C
−.99 to −.25	D
Below −1.00	E

On the reverse side of this page you will find the Comparison Table indicating health scores in terms of general types of institutions.

While we are sending you your printout as a public service, the use which you care to make of this data remains entirely your responsibility. Since we are not a research organization, it is not our function to provide further technical information on this study.

Professional Services
Change Magazine

CHART 1
FINANCIAL CONDITION BY FIVE HEALTH SCORES



With 16 key financial health variables, institutions fell within the range of plus three to minus three. Each institution can now determine its own score.

THE SIXTEEN KEY HEALTH INDICATORS

Categorical Variables	Private Control	A categorical variable distinguishing privately controlled institutions from others.
	Two-Year College	A categorical variable distinguishing two-year institutions from others.
Trend Variables	Trend in Undergraduate FTE Enrollment	Undergraduate full-time equivalent enrollments.
	Trend in Graduate FTE Enrollment	Graduate level full-time equivalent enrollments.
	Trend in Educational and General Expenditures	Educational and general (E and G) expenditures.
	Trend in Plant Addition Expenditures	Plant additions: the increase or decrease in reported book value for a given year. A 10-percent increase in this item indicates that total expenditures for plant and equipment in 1974 were 10 percent above those made in 1972, not that total plant in 1974 was 10 percent greater than in 1972.
Financial Ratios	Current Funds Revenue-Expenditure Ratio	The current funds revenue-expenditure ratio summarizes whether the institution's operating funds cover its operating expenses.
	Current Funds Revenues: Fixed Operating Costs Ratio	This ratio was intended to measure the institution's ability to cover its fixed costs. Since, because of tenure policies, we regarded most labor costs as fixed, this ratio is not strictly comparable to its business counterpart.
	Gift, Grant, and Contract Revenue: Current Funds Revenue Ratio	This ratio measures the importance of gifts and outside nonresearch support (excluding direct governmental subsidies for instruction) among the institution's revenue sources.
	Academic Mission Expenditures: Educational and General Expenditure Ratio	Academic mission expenditures include all educational and general expenditures except maintenance, plant operation, and administrative costs. The ratio indicates how much of the institution's resources are devoted to academic uses.
	Tuition and Fees: Student Aid Revenues	Student aid revenues include all monies received for or restricted to student aid. As mentioned in the text, this ratio may serve as a proxy for student aid effort.
	Current Funds Revenues: Plant Assets Ratio	Plant assets are measured at book value. This ratio measures the revenue productivity of the institution's assets.
	Plant Assets: FTE Enrollment Ratio	This ratio indicates the amount of plant assets "used" in educating one student and is a rough indicator of how intensively the plant is utilized.
	Graduate FTE: Undergraduate FTE Ratio	The ratio of graduate FTE to undergraduate FTE, as is explained in the text, serves as a proxy for major research institutions.
	Educational and General Expenditures: Degrees Conferred Ratio	This is an estimate of the cost of producing one degree graduate. Graduate and undergraduate costs are averaged.
	Freshman FTE: Undergraduate FTE Ratio	This ratio reflects persistence patterns among the undergraduate population within the institution. It is affected by attrition and by the mix (if any) between students in two- and four-year degree programs.

Note: Educational and general expenditures are defined in accordance with 1973 USOE HEGIS instructions. They include most current operating costs of institutions such as instruction, student aid, research and maintenance expenses, but do not include the costs of hospitals and other "major service programs" or those of auxiliary enterprises such as bookstores, dormitories, and dining halls.

The first two indicators are categorical variables which take on a value of one for private institutions and two-year colleges respectively, and zero for all others. The four trend variables cover the period of 1972 to 1974 and were input as [illegible] transformations. The remaining 10 variables are FY 1974 financial ratios.

Sixteen key variables were found to be dominant indicators of overall financial health.

Appendix A

Table 2

PRINCE GEORGE'S COMMUNITY COLLEGE

Values of Indicators Used in This Analysis (PGCC data)

Academic mission expenditures	$ 6,165,220
Current funds expenditures	$ 9,449,021
Current funds revenues	$10,123,410
Educational and General expenditures	$ 9,252,090
Educational and General revenues	$ 9,893,567
Fixed operating costs	$ 8,917,053
Freshmen	7,503
FTE	6,613
Gifts, Grants, and contracts	-0-
Graduate students	-0-
Plant assets	$12,216,025
Student aid revenues	$ 229,845
Total degrees conferred or undergraduate degrees conferred	807
Tuition and Fees	$ 2,561,030
Undergraduates	9,725

SOURCE: Institutional Research Office based on 1974 HEGIS reports.

Table 3

PRINCE GEORGE'S COMMUNITY COLLEGE
Financial Health Ratios, FY1974

Current Funds Revenues/Current Funds Expenditures	1.07
E and G Revenues/Fixed Operating Costs	1.11
Gifts, Grants and Contracts/E and G Revenues	0
Academic Mission Expenditures/E and G Expenditures	.66
Tuition and Fees/Student Aid Revenues	11.14
Current Funds Revenues/Plant Assets	.83
Plant Assets/FTE	1,847.27
Graduate Students/Undergraduates	0
E and G Expenditures/Total Degrees Conferred	11,464.80
Freshmen/Undergraduate Degrees	9.30

SOURCE: Institutional Research Office, based on HEGIS reports, Fall 1974.

2/18/77

Appendix A

Table 4

DATA FOR PRINCE GEORGE'S COMMUNITY COLLEGE

INSTITUTIONAL FINANCIAL HEALTH SCORE

VARIABLE	U.S. MEAN	U.S. STANDARD DEVIATION	INSTITUTIONAL Z-SCORE	WEIGHT	TOTAL
DESCRIPTORS (1974)					
1. CONTROL	0.519	0.499	-1.040	-0.668	0.695
2. TYPE	0.384	0.486	1.267	0.234	0.296
TRENDS (1972-74)					
3. UNDERGRADUATE FTE	0.255	1.596	-0.038	0.244	-0.009
4. GRADUATE FTE	0.192	1.737	-0.110	0.116	-0.013
5. E AND G EXPENDITURES	1.051	6.859	-0.123	-0.278	0.034
6. PLANT ADDITIONS (SEE *)	8.877	5.991	0.801	0.533	0.427
RATIOS (1974)					
7. CURRENT FUNDS REVENUES/ CURRENT FUNDS EXPENDITURES	1.132	3.328	-0.018	1.405	-0.026
8. E AND G REVENUES/ FIXED OPERATING COSTS	1.241	3.183	-0.033	-1.598	0.053
9. GIFTS, GRANTS AND CONTRACTS/ E AND G REVENUES	0.116	0.176	-0.656	0.364	-0.239
10. ACADEMIC MISSION EXPENDITURES/ E AND G EXPENDITURES	0.633	0.135	0.139	0.094	0.013
11. TUITION AND FEES/ STUDENT AID REVENUES	132.817	5473.012	-0.022	0.466	-0.010
12. CURRENT FUNDS REVENUES/ PLANT ASSETS	0.880	4.552	-0.011	-0.183	0.002
13. PLANT ASSETS/FTE	9991.762	16803.793	-0.469	-0.794	0.372
14. GRADUATE STUDENTS/ UNDERGRADUATES	1.458	18.302	-0.080	2.321	-0.185
15. E AND G EXPENDITURES/ TOTAL DEGREES CONFERRED	21435.473	50299.441	-0.068	-0.034	0.002
16. FRESHMEN/ UNDERGRADUATE DEGREES	2.216	11.245	0.090	0.071	0.006
				TOTAL =	1.420

Appendix B

Table 1: Annual Growth in Student Credit Hours, FY68-FY77

Table 1

PRINCE GEORGE'S COMMUNITY COLLEGE

Annual Growth in Student Credit Hours, FY68-FY77

Fiscal Year	Student Credit Hours	F.T.E. Students	Percentage Change
1977	244,000	8,133	2%
1976	238,380	7,946	13
1975	210,535	7,018	9
1974	193,592	6,453	15
1973	169,211	5,640	10
1972	153,318	5,111	12
1971	137,661	4,589	28
1970	107,146	3,572	12
1969	91,225	3,041	12
1968	74,742	2,491	N.A.

SOURCE: Institutional Research Office.

3/15/77

Appendix C

Table I: Current Funds Expenditures by HEGIS Function, FY1970-FY1976

Appendix C

Table 1

PRINCE GEORGE'S COMMUNITY COLLEGE

Current Funds Expenditures by HEGIS Function, FY1970-FY1976

Function	1970	1971	1972	1973	1974	1975	1976
Instruction	$ 2,615,046	$ 3,344,789	$ 3,851,722	$ 4,773,828	$ 5,251,469	$ 6,292,759	$ 6,643,759
Library	173,621	286,084	326,156	403,246	381,783	465,225	456,603
Other Educ. & Gen.	1,216,373	1,575,260	1,881,076	2,643,021	2,406,065	2,109,032	2,292,377
Public Service	36,330	22,961	187,352	337,865	335,037	543,935	1,340,883
Plant Op. & Maint.	511,561	1,147,993	1,266,303	726,528	877,736	1,164,186	1,203,790
TOTAL	$ 4,552,931	$ 6,377,087	$ 7,512,609	$ 8,884,488	$ 9,252,090	$11,800,542	$13,241,417

SOURCE: Financial Statistics of Institutions of Higher Education (HEGIS), Part B.

4/21/77

Appendix D

Table I: Expenditures by Function

Appendix D

Table 1

PRINCE GEORGE'S COMMUNITY COLLEGE

Expenditures by Function*

Code	Function	FY71	FY72	FY73	FY74	FY75	FY76
10	Instructional	$ 3,678,427	$ 3,889,846	$ 4,794,120	$ 5,134,862	$ 6,181,766	$ 6,888,624
40	Instructional Resources	---	326,156	371,242	361,612	413,372	434,110
50	Student Services	563,288	518,645	666,323	686,530	824,202	935,473
60	Plant Oper. & Maint.	855,728	786,336	875,727	871,665	1,105,691	1,184,584
70	General Administration	821,516	1,053,596	1,499,631	1,382,221	1,675,988	1,904,255
90	General Institutional	---	166,628	182,466	207,075	245,771	259,061
	Fixed Charges	189,053	289,349	---	---	---	---
	Cap. Equip. & Transfers	635,683	800,454	372,498	197,664	636,599	450,893
	TOTAL	$ 6,743,695	$ 7,831,010	$ 8,762,007	$ 8,841,629	$11,083,389	$12,057,000

* Data taken from annual certified financial statements.

2/11/77

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